

A2 one group of the transducers resonates at a different frequency to other groups of the transducers, and each signal generator is arranged to energise the respective group of the transducers at their resonant frequency.

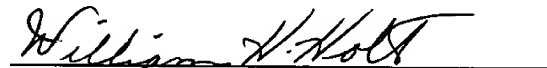
REMARKS

By this Preliminary Amendment, all multiple dependencies in the claims have been deleted, and a minor amendment as to form has been made. New Claim 8 has been added.

A marked up copy showing all the changes made to Claims 1-5 and 7 relative to the previous versions of these claims is submitted as ATTACHMENT A.

Favorable action is courteously solicited.

Respectfully submitted,


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ATTACHMENT A

1. (Amended) An apparatus for subjecting a fluid to irradiation by high intensity ultrasound, the apparatus comprising a generally cylindrical vessel [(12, 13)], and a multiplicity of ultrasonic transducers [(14)] attached to a wall of the vessel in an array that extends both circumferentially and longitudinally so as to radiate ultrasonic waves at a frequency above 10 kHz into a fluid in the vessel, characterised by the vessel [(12, 13)] being large enough that each transducer [(14)] radiates into fluid at least 0.1 m thick, each transducer [(14)] being connected to a signal generator arranged so the transducer radiates no more than 3 W/cm², the transducers [(14)] being sufficiently close to each other, and the number of transducers [(14)] being sufficiently high, that the power dissipation within the vessel [(12, 33)] is at least 25 W/litre but no more than 150 W/litre.

2. (Amended) An apparatus as claimed in claim 1 wherein the power radiated by each transducer [(14)] is in the range 1-2 W/cm².

3. (Amended) An apparatus as claimed in claim 1 [or claim 2] wherein the number of transducers [(14)], the power of the transducers [(14)], and the volume of the vessel [(12, 32)] are such that the power density is between 40 and 80 W/litre.

4. (Amended) An apparatus as claimed in claim 1 wherein the vessel [(32)] is double walled, with an inner wall and an outer wall with a space between them, the transducers [(14)] being attached to the outer wall (35), the fluid to be treated is enclosed within the inner wall [(32)], and the space [(36)] between the two walls [(32, 35)] is filled by a low attenuation buffer liquid whose cavitation threshold is above that of

the liquid to be treated.

5. (Amended) An apparatus as claimed in [any one of the preceding claims] claim 1 comprising a plurality of ultrasonic signal generators, each signal generator being arranged to energise a separate group of the transducers.

7. (Amended) An apparatus as claimed in claim 5 [or claim 6] wherein at least one group of the transducers resonates at a different frequency to other groups of the transducers, and each signal generator is arranged to energise the respective group of the transducers at their resonant frequency.

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